

## PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P0732	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/GB 03/01626	International filing date (day/month/year) 16.04.2003	Priority date (day/month/year) 23.04.2002
International Patent Classification (IPC) or both national classification and IPC E05C19/00		
Applicant WILLEARN LIMITED		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 15 sheets.

3. This report contains indications relating to the following items:

- I  Basis of the opinion
- II  Priority
- III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

Date of submission of the demand 20.11.2003	Date of completion of this report 27.07.2004
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Pieracci, A Telephone No. +49 89 2399-5780



INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

International application No. PCT/GB 03/01626

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

6, 9, 10 as published  
1-5, 7, 8, 11 received on 20.11.2003 with letter of 19.11.2003

**Claims, Numbers**

1-36 received on 20.11.2003 with letter of 19.11.2003

**Drawings, Sheets**

1/8-8/8 as published

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.: 37
- the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

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5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).  
*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-36
	No: Claims	
Inventive step (IS)	Yes: Claims	1-36
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-36
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**Re Item V**

**Reasoned statement according to Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

- 2.1 The subject-matter of claims 1-36 is new and inventive according to Article 33(1), (2) and (3) PCT as well as industrially applicable according to Article 33(4) PCT.
- 2.2 The closest prior art is described by document US-A-5039147 (D1) which discloses a security device comprising keep means (18) and arm means (10a, 10b, 10c) according to the preamble of claim 1 and further comprising first spring means (28) which absorbs energy upon engagement of the arm means with the keep means (see col. 3, ln. 7-26; Fig. 2-4).
- 2.3 The subject-matter of claim 1 differs from the security device in D1 in that the keep means incorporates an axial cylindrical recess having an end open to the slot and in which is received a piston means and the first spring means, the piston means being adapted to be contacted, and displaced to a limited extent in the axial cylindrical recess against the first spring means, by the second end of the arm means when forceful pressure is applied to the door to attempt opening of the door. The technical effect of this arrangement is that of allowing a simplified and robust construction, there being no need to have hollow arm means to incorporate the spring means. The technical problem can therefore be seen to provide a security device in alternative to the one of the prior art and being of simplified and robust construction. This problem is solved by providing a security device with the technical features mentioned above. Such an arrangement is neither described nor suggested by the prior art and thus the subject-matter of claim 1 is new and inventive.

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### SECURITY DEVICE FOR A DOOR

This invention relates to a security device for a building and which is operable to limit opening of an inwardly-openable door in the building, particularly to prevent forced entry by an intruder while allowing sufficient opening of the door to enable identity of a person outside the door to be determined.

10 The present invention also provides for an alarm to be actuated when forced entry is attempted through the door.

According to the present invention there is provided a security device for limiting opening of an inwardly-openable door in a building comprising: keep means, comprising an elongate block, adapted to be secured to a region of an inside surface of the door; and arm means adapted to be swivelably secured at a first end thereof to an interior surface of the building fixed relative to the door, the arm means being adapted to be manually swivelled between a first position, clear of the door, and a second position in which a second end of the arm means abuttingly engages an outwardly open slot at a first end of the elongate block of the keep means to limit opening of the door, wherein the elongate block incorporates an axial cylindrical recess having an end open to the slot and in which is received a piston means and a first spring means, the first spring means being provided to absorb energy upon engagement of the second end of the arm means with the keep means, the piston means being adapted to be contacted, and displaced to a limited extent in the axial cylindrical recess against the first spring means, by the second end of the arm means when forceful pressure is applied to the door to attempt opening of the door.

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The spring means may additionally serve to recoil and effect or assist closure of the door in event of the door being undesirably jolted inwardly from outside.

5 The region of the inside surface of the door to which the keep means is adapted to be secured may be adapted to be adjacent to a hinged edge of the door.

10 The interior surface of the building to which the arm means is adapted to be swivelably secured may be a wall of the building adjacent to a hinged edge of the door, and such as extending at substantially ninety degrees to the door when the door is closed. Intermediate support means, such as of block form, may be provided for 15 securing to the wall and adapted to have the arm means swivelably secured thereto.

20 The outwardly open slot of the keep means may be of U-shape.

25 The elongate block may be adapted to be secured to the region of the inside surface of the door by way of a first base plate to which it is secured, and which may be apertured to receive one or more securing means, such as one or more threaded fasteners.

30 The piston means may have a first face provided with a recess for receiving the second end of the arm means and may have a second face, opposite the first face, provided with a protrusion for accommodating the first spring means.

35 The outwardly open slot at the first end region of the elongate block may have an end portion sloping inwardly towards the piston means in the axial cylindrical recess

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to direct the second end of the arm means into alignment with the piston means and the axial cylindrical recess.

The axial cylindrical recess may extend through the  
5 elongate block to a second end region of the elongate block opposite to the first end region of the block and may be closed by a cap means, which may be threaded into or onto the second end region of the elongate block.

10 The arm means, at least at the second end thereof, may be of substantially solid cylindrical form.

The first end of the arm means may be provided with a bearing component, secured thereto or integral therewith,  
15 which is rotatable in a mounting component adapted to be secured to the interior surface of the building fixed relative to the door. The bearing component may be arranged for rotation in the mounting component about a substantially vertical axis, when the mounting component  
20 is secured to the interior surface of the building, and such that the arm means is able to be swivelled between the first and second positions in a substantially horizontal plane.

25 The mounting component may comprise upper and lower portions journalled to rotatably receive the bearing component therebetween and secured to a second base plate which may be apertured to receive one or more securing means, such as one or more threaded fasteners.

30 A second spring means, for example a compression spring, may be incorporated with the arm means such that the first end of the arm means is slidably secured to the bearing component against the second spring means and

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with the arm means displaceable in its axial direction relative to the bearing component.

5 The second spring means may reinforce the function of the first spring means.

Switch means may be incorporated in the bearing component and adapted to be actuated by axial displacement of the arm means relative to the bearing component against the 10 second spring means to operate an alarm means, such as an audible alarm means, to provide a warning that forced entry through the door is being attempted. Such alarm means may be incorporated in a cavity in the mounting component, or may be at a remote location.

15 One or more batteries may be incorporated in a cavity provided in the mounting component, such cavity being suitably closed by a cap means which may threadedly engage the mounting component.

20 The second spring means may have a spring rate which is lower than that of the first spring means, whereby the switch means is actuated before the first spring means is fully compressed.

25 The device may substantially comprise metal, such as brass or aluminium. When the metal is aluminium, it may be surface-anodised.

30 The first spring means may be a compression spring.

For a better understanding of the present invention and to show more clearly how it may be carried into effect,

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reference will now be made, by way of example, to the accompanying drawings in which:

Figure 1 is a perspective view of an embodiment of a  
5 security device according to the present invention  
installed in association with a door in a building;

Figure 2 is a plan view of the security device of Figure  
1;

10 Figure 3 is an exploded view of keep means forming part  
of the security device of Figures 1 and 2;

15 Figure 4 is a perspective view of an elongate block in  
the keep means of Figure 3;

Figure 5 is a perspective view of the elongate block of  
Figure 4, showing a piston means provided in a  
cylindrical recess thereof;

20 Figure 6 is a perspective view of the elongate block of  
Figure 5 secured to a base plate;

25 Figure 7 is an exploded view of swivelably-mounted arm  
means forming part of the security device of Figures 1  
and 2;

Figure 8 is a perspective view of part of the arm means  
of Figure 7 mounted in a bearing component; and

30 Figure 9 is a perspective view of the assembled  
swivelably-mounted arm means of Figure 7, provided with  
an alarm means.

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As will be described in detail hereinafter, at least one spring means is incorporated in the keep means 6, or in the keep means and the arm means 12 and operating in an axial direction of the arm means 12. Such spring means 5 is or are arranged to absorb energy upon dynamic engagement of the second end 18 of the arm means 12 with the keep means 6 and reduces the likelihood of damage to the door 4 and its frame and hinges.

10 The spring means additionally serves or serve to recoil and effect or assist closure of the door 4 by effecting rebound of the door 4 in event of the door being undesirably jolted by an intruder attempting forcible entry from outside.

15 As will also be described in detail hereinafter, the security device 2 may be adapted to operate an alarm means when forcible entry through the door 4 is attempted.

20 The security device 2 of the present invention accordingly is readily arranged to allow complete freedom of opening of the door 4, when the arm means 12 is in the first position shown by the dotted outline in Figure 1, 25 or allow only a predetermined limited extent of opening of the door 4 when the arm means 12 is abuttingly engaged with the keep means 6. Such predetermined limited extent of opening may be sufficient to provide a gap to allow identification of a person outside the door 4 and/or to 30 permit receipt of items, such as mail, through the gap.

The security device 2 substantially comprises metal, such as brass or aluminium. When the metal is aluminium, its surface may be anodised.

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Referring additionally now to Figures 3 to 6, the keep means 6 comprises an elongate block 20 secured to a first base plate 22 by means of threaded fasteners 24 passing through holes 26 in the first base plate 22 and into

5 threaded holes 28 provided in the elongate block 20. The first base plate 22 is provided with holes 30 therein through which screws 32 are passed for securing the keep means 6 to the inside surface of the door 4.

10 The elongate block 20 is provided, at a first end region 34 thereof, with an outwardly open U-shaped slot 36 for receiving the second end 18 of the arm means 12.

15 The elongate block 20 incorporates an axial cylindrical recess 38 (Figure 4) having an end open to the U-shaped slot 36 and in which is received a piston 40 and a first compression spring 42. The piston 40 has a first face 44 provided with a recess for abuttingly receiving the second end 18 of the arm means 12 when the latter is  
20 located in the U-shaped slot 36.

The piston 40 also has a second face provided with a protrusion 46 which fits inside one end of the first compression spring 42.

25 The axial cylindrical recess 38 extends through the elongate block 20 to a second end region 48 of the elongate block 20 and is closed by a cap means 50 which is threaded into, but could be threaded onto, the second end region 48 of the elongate block 20. The cap means 50 is provided with a protrusion 52 for locating in the first compression spring 42.

When the arm means 12 is engaged with the U-shaped slot 36, and forceful pressure is applied to the door 4 to

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60 of the mounting component. However, the alarm means  
88 could be arranged at a remote location and/or could  
form part of a general security alarm system provided in  
the building.

5

One or more batteries 90 for powering the alarm means 88  
can be provided inside the mounting component 58, 60,  
such as in a cavity in the upper portion 58 of the  
mounting component. Access to the battery or batteries  
10 90 is suitably arranged by means of a cap 92 threadedly  
engaging the mounting component 58, 60.

The second compression spring 76 suitably has a spring  
rate which is lower than that of the first compression  
15 spring 42, whereby the switch 86 is actuated before the  
first compression spring 42 is fully compressed.

The second compression spring 76 may also reinforce the  
function of the first compression spring 42.

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CLAIMS

1. A security device (2) for limiting opening of an inwardly-openable door (4) in a building comprising:

5 keep means (6), comprising an elongate block (20), adapted to be secured to a region of an inside surface (8) of the door (4); and

10 arm means (12) adapted to be swivelably secured at a first end (14) thereof to an interior surface (16) of the building fixed relative to the door (4), the arm means (12) being adapted to be manually swivelled between a first position, clear of the door (4), and a second

15 position in which a second end (18) of the arm means (12) abuttingly engages an outwardly open slot (36) at a first end of the elongate block (20) of the keep means (6) to limit opening of the door (4),

20 characterised in that the elongate block (20) incorporates an axial cylindrical recess (38) having an end open to the slot (36) and in which is received a piston means (40) and a first spring means, the first spring means being provided to absorb energy upon

25 engagement of the second end (18) of the arm means (12) with the keep means (6), the piston means (40) being adapted to be contacted, and displaced to a limited extent in the axial cylindrical recess against the first spring means (42), by the second end (18) of the arm

30 means (12) when forceful pressure is applied to the door (4) to attempt opening of the door (4).

2. A device as claimed in claim 1, characterised in that the spring means additionally serves to recoil and

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effect or assist closure of the door (4) in event of the door (4) being undesirably jolted inwardly from outside.

3. A device as claimed in claim 1 or 2, characterised in that the region of the inside surface (8) of the door (4) to which the keep means (6) is adapted to be secured is adapted to be adjacent to a hinged edge (10) of the door (4).

10 4. A device as claimed in any preceding claim, characterised in that the interior surface (16) of the building to which the arm means (12) is adapted to be swivelably secured is a wall of the building adjacent to a hinged edge (10) of the door (4), and such as extending 15 at substantially ninety degrees to the door (4) when the door (4) is closed.

5. A device as claimed in any preceding claim, characterised in that intermediate support means is 20 provided for securing to the wall and adapted to have the arm means (12) swivelably secured thereto.

6. A device as claimed in claim 5, characterised in that the intermediate support means is of block form.

25 7. A device as claimed in any preceding claim, characterised in that the outwardly open slot (36) of the elongate block (20) is of U-shape.

30 8. A device as claimed in any preceding claim, characterised in that the elongate block (20) is adapted to be secured to the region of the inside surface (8) of the door (4) by way of a first base plate (12) to which it is secured.

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9. A device as claimed in claim 8, characterised in that the first base plate (12) is apertured to receive at least one securing means (24).

5 10. A device as claimed in claim 9, characterised in that the at least one securing means is a threaded fastener (24).

11. A device as claimed in any preceding claim, 10 characterised in that the piston means (40) of the elongate block (20) has a first face (44) provided with a recess for receiving the second end (18) of the arm means (12).

15 12. A device as claimed in claim 11, characterised in that the piston means (40) has a second face, opposite the first face (44), provided with a protrusion for accommodating the first spring means (42).

20 13. A device as claimed in any preceding claim, characterised in that the outwardly open slot at the first end region of the elongate block (20) has an end portion (54) sloping inwardly towards the piston means (40) in the axial cylindrical recess to direct the second 25 end (18) of the arm means (12) into alignment with the piston means (40) and the axial cylindrical recess.

14. A device as claimed in any preceding claim, characterised in that the axial cylindrical recess (38) 30 extends through the elongate block (20) to a second end region (48) of the elongate block (20) opposite to the first end region of the block.

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15. A device as claimed in any preceding claim, characterised in that the axial cylindrical recess (38) is closed by a cap means (50).

5 16. A device as claimed in claim 15, characterised in that the cap means (50) is threaded into the second end region of the elongate block (20).

10 17. A device as claimed in claim 15, characterised in that the cap means is threaded onto the second end region of the elongate block (20).

15 18. A device as claimed in any preceding claim, characterised in that the arm means (12), at least at the second end (18) thereof, is of substantially solid cylindrical form.

20 19. A device as claimed in any preceding claim, characterised in that the first end (14) of the arm means (12) is provided with a bearing component (56), secured thereto or integral therewith, which is rotatable in a mounting component adapted to be secured to the interior surface (16) of the building fixed relative to the door (4).

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20. A device as claimed in claim 19, characterised in that the bearing component (56) is arranged for rotation in the mounting component about a substantially vertical axis, when the mounting component is secured to the interior surface (16) of the building, and such that the arm means (12) is able to be swivelled between the first and second positions in a substantially horizontal plane.

35 21. A device as claimed in claim 19 or 20, characterised in that the mounting component comprises upper (58) and

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lower (60) portions journalled to rotatably receive the bearing component (56) therebetween and secured to a second base plate (62) which is apertured to receive one or more securing means (64).

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22. A device as claimed in claim 21, characterised in that the securing means comprises threaded fasteners (64).

10 23. A device as claimed in any one of claims 19 to 22, characterised in that a second spring means (76) is incorporated with the arm means (12) such that the first end (14) of the arm means (12) is slidably secured to the bearing component (56) against the second spring means 15 (76) and with the arm means (12) displaceable in its axial direction relative to the bearing component (56).

24. A device as claimed in claim 23, characterised in that the second spring means (76) reinforces the function 20 of the first spring means (42).

25. A device as claimed in any one of claims 23 to 24, characterised in that switch means (86) is incorporated in the bearing component (56) and adapted to be actuated 25 by axial displacement of the arm means (12) relative to the bearing component (56) against the second spring means (76) to operate an alarm means (88) to provide a warning that forced entry through the door (4) is being attempted.

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26. A device as claimed in claim 25, characterised in that the alarm means (88) is an audible alarm means.

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27. A device as claimed in claim 25 or 26, characterised in that the alarm means is incorporated in a cavity in the mounting component.

5 28. A device as claimed in claim 25 or 26, characterised in that the alarm means is at a remote location.

29. A device as claimed in any one of claims 19 to 28, characterised in that one or more batteries (90) are 10 incorporated in a cavity provided in the mounting component.

30. A device as claimed in claim 29, characterised in that the cavity is suitably closed by a cap means which 15 threadedly engages the mounting component.

31. A device as claimed in any one of claims 25 to 30, characterised in that the second spring means (76) has a spring rate which is lower than that of the first spring 20 means (42), whereby the switch means (86) is actuated before the first spring means (42) is fully compressed.

32. A device as claimed in any preceding claim, characterised in that the device substantially comprises 25 metal.

33. A device as claimed in claim 32, characterised in that the metal is selected from brass and aluminium.

30 34. A device as claimed in claim 35, characterised in that the aluminium is surface-anodised.

35 35. A device as claimed in any one of claims 23 to 34, characterised in that the second spring means is a compression spring.

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36. A device as claimed in any preceding claim,  
characterised in that the first spring means is a  
compression spring.